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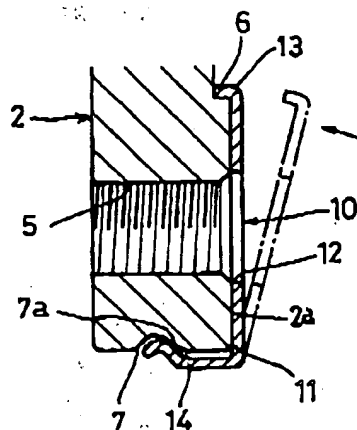
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(54) 【発明の名称】 ディスクブレーキ

(57) 【要約】

【課題】 ブレーキ装置の取付足の厚みを薄くせざるを得ないときにも取付足とその取付足をボルトで固定する支持部材との間に介在するシム板を取付足に仮止めて出荷することができるディスクブレーキを提供する。

【解決手段】 ボルト孔12を有するシム板10の基部11の外周縁部に同一方向に折り曲げた爪13と弾性腕片14を設け、弾性腕片14を取付足2の側面に設けた凹部7に係合させ、爪13を取付足の端面に設けた段部6に係止させてシム板10を取付孔5の孔径方向に抱きつかせて仮止めするようにした。



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(2)

特開2002-295539

1

2

## 【特許請求の範囲】

【請求項1】 ブレーキ装置の取付足とその取付足をボルトで固定する支持部材との間にボルト孔付きシム板を介在するディスクブレーキにおいて、前記シム板に、板厚方向に折り曲げた爪と弾性腕片を設け、前記弾性腕片を取付足の側面に設けた凹部又は凸部に係合させ、爪と弾性腕片でシム板を取付足に設けた取付孔の孔径方向に抱きつかせたことを特徴とするディスクブレーキ。

【請求項2】 前記凹部又は凸部に、シム板の基部に近づくにつれてボルト取付孔の中心から離れる方向にシム板の基部の平面に対して傾いた鋸肌面の斜面を含め、その斜面に弾性腕片を係合させるようにした請求項1記載のディスクブレーキ。

【請求項3】 弾性腕片を、ボルト孔を中心にして2分したシム板の片側半分の外周縁部に設け、残り半分の外周縁部に前記爪を設けた請求項1又は2記載のディスクブレーキ。

【請求項4】 弾性腕片を、ボルト孔を中心にして2分したシム板の片側半分の外周縁部に設け、前記爪をシム板のボルト孔の孔縁部に設け、その爪を取付足のボルト取付孔の入口に設けた爪掛け孔の孔面に係止させるようにした請求項1又は2記載のディスクブレーキ。

## 【発明の詳細な説明】

【0001】

【発明の属する技術分野】この発明は、ブレーキ装置の取付足と、その取付足をボルトで固定する支持部材との間に、電蝕防止等を目的としてシム板を介在するディスクブレーキに関する。

【0002】

【従来の技術】ディスクブレーキにおいては、キャリバやトルクメンバに設けられるブレーキ装置の取付足と、その取付足をボルトで固定する鉄系材料等で形成された支持部材との間に、電蝕や取付け面の錆付き防止を目的としてそれぞれの目的に応じた材質或いは処理を施したシム板を介在することが行われている。

【0003】そのシム板の従来例を図6及び図7に示す。図6のシム板20は、圧入方式であり、片面に打ち出した円筒状ボス部21を取付足2に設けた取付孔（ねじ孔）5の入口側大径部に圧入して取付足に仮止める。

【0004】また、図7のシム板30は挟持方式であり、周縁部に設けた弾性腕片31を取付足2の取付面2aとは反対側の面2bに圧接させて取付足に抱きつかせ、ディスク軸方向挟持により仮止めを行う。

【0005】このほかにも、図6のシム板のボス部21を、周方向に点状させる複数本の爪に置き換え、その爪の内側は大径部と小径部を周方向に交互に形成したスナップリングを挿入してそのスナップリングの大径部を取付孔5の入口側大径部の内面に圧接させ、スナップリングの小径部に爪の先端の内向き屈曲部を係止させてシム

板をスナップリングで仮止めるもの（特開平9-53666号参照）なども考えられている。

【0006】なお、シム板の仮止めは、車両等に搭載するまでのディスクブレーキの保管、管理、運搬の手間の削減や、ブレーキ装着時の作業性改善等を目的としてなされる。

【0007】

【発明が解決しようとする課題】上述した従来のシム板は、ディスクDの端面から取付足2の取付面までの寸法しを充分にとれないときに取付孔5のねじの有効長さが不足し、この面から使用規制を受けることがある。

【0008】また、圧入方式のシム板は組付け時に圧入機を必要とし、スナップリングを使用するものは取付け工数が増えて好ましくない。

【0009】この発明は、これ等の不具合を解消することを課題としている。

【0010】

【課題を解決するための手段】上記の課題を解決するため、この発明においては、シム板に、板厚方向に折り曲げた爪と弾性腕片を設け、前記弾性腕片を取付足の側面に設けた凹部又は凸部に係合させ、爪と弾性腕片でシム板を取付足に設けた取付孔の孔径方向に抱きつかせるようにしたのである。

【0011】このシム板は、凹部又は凸部に、シム板の基部に近づくにつれてボルト取付孔の中心から離れる方向にシム板の基部の平面に対して傾いた鋸肌面に斜面を含め、その斜面に弾性腕片を係合させるとより好ましいものになる。

【0012】なお、使用するシム板は、弾性腕片を、ボルト孔を中心にして2分したシム板の片側半分の外周縁部に設け、残り半分の外周縁部に前記爪を設けたものと、弾性腕片を、ボルト孔を中心にして2分したシム板の片側半分の外周縁部に設け、前記爪をシム板のボルト孔の孔縁部に設け、その爪を取付足のボルト取付孔の入口に設けた爪掛け孔の孔面に係止させるようにしたものとの2者が考えられ、2者のどちらを選択してもよい。

【0013】

【作用】この発明では、シム板を爪と弾性腕片で取付孔の半径方向に抱きつかせて取付足に仮止めるので、構造上、弾性腕片のみによる仮止め保持ができない場合に、弾性腕片を設けることができない位置に爪を設け、弾性復元力での保持が単独でできないその爪を使用して仮止め保持を行うことが可能になり、従って、図6のシム板20が必要とした圧入代、図7のシム板30が必要としたディスクとの干渉回避用の隙間が不要であり、その分、取付孔の有効ねじ長さを長くすることができる。従って、取付足の厚みを薄くせざるを得ないブレーキにも使用でき、利用範囲が拡大する。

【0014】取付足の側面に設ける凹部や凸部に鋸肌面の斜面を含ませてその斜面に弾性腕片を係合させるもの

(3)

特開2002-295539

3

は、鉋肌面を機械加工する必要がない。さらに、シム板の基部の平面に近づくにつれてボルト取付孔の中心から離れる方向に傾いた鉋肌面の斜面の中央部分と係合することで、鉋肌寸法がばらついても係合相手の斜面に、その斜面以外の部分と干渉せずに確実に係合し、シム板の取付面からの浮き上がりが防止できる。

【0015】また、弾性腕片をシム板の片側半分の外周縁部に設け、爪を残し半分の外周縁部に設けたものは、弾性腕片を凹凸部に係合させ、そこを支点にしてシム板を起こすようにして爪を取付足に係止させることができ、シム板の装着がし易い。

【0016】爪を取付孔の入口の爪掛け孔に係止させるものも、上記と同様の手順でシム板を容易に装着することができる。また、この構造は、シム板の取付孔径方向への動きを爪でより確実に防止することもできる。

【0017】

【発明の実施の形態】図1に、この発明のディスクブレーキの実施形態を示す。同図は、ヒストン対向型ディスクブレーキへの適用例であって、キャリパ1のインナー側に取付足2が設けられている。

【0018】3は車両に設置されるブレーキ支持部材、4は取付足2を支持部材3に固定する取付ボルト、5は取付足2に設けたボルトねじ込み用の取付孔である。ボルト4は、取付足2にブッシュナット（図示せず）を取付けてそのナットに係合させることもあり、その場合、取付孔5は取付足に間接的に設けた形になる。

【0019】取付足2には、取付面2aの外周に添った爪掛け用の段部6（図2、図3参照）と、取付孔5の孔径方向に落ち込む凹部7（図3参照）を設けてある。凹部7は、図4に示すような凸部8に置き代えてもよい、いずれにせよ、その凹部7や凸部8は、取付足2の側面に設ける。

【0020】10は、取付足2と支持部材3間に介在する電磁防止用もしくは取付面の錆付き防止用のシム板である。このシム板10は、図2に示すように、基部11を、取付足の取付面2aを覆い隠す形状にしてその基部11にボルト孔12を設け、さらに、基部の外周縁に同一方向に折り曲げた爪13と弾性腕片14を設けて成る。

【0021】例示のシム板10は、凹部7や凸部8に弾性腕片14に係合させ、そこを支点にして図3、図4の鎖線位置から基部11を起こして爪13を段部6に係止させることができ、取付けが容易である。また、弾性腕片14を、ボルト孔12の中心を通る線P（図2）を境にした基部の下半分の外周縁部に左右対称に2個設けて爪13と弾性腕片14で3点支持を行うようにしており、取付け後に位置ずれし難い。

【0022】図3の凹部7や図4の凸部8は、図示の方向に傾く鉋肌面の斜面7a、8aを含んでおり、その斜面に弾性腕片14に係合する。この状態で係合点に弾性

4

腕片14の弾性復元力が作用し、その力でシム板の基部11が図3、図4の左方に引き寄せられて取付面2aからの浮き上がりが防止される。

【0023】斜面7a、8aを図示の方向に傾斜させると凹凸部7、8の寸法が多少ばらついても仮止め及び前述の浮き上がり防止の目的が達成され、従って、鉋肌面を機械加工せずに済み、生産面、コスト面で有利になる。

【0024】図5は、他の実施形態である。ここで用いたシム板10は、爪13をボルト孔12の孔縁部に定ピッチで複数個（3個以上が好ましい）設け、この爪13を取付孔5の入口部に設けた爪掛け孔9の内面に係止させる構造にしている。他の構成は図1～図4のシム板と同じであるので説明を省く。

【0025】この図5のシム板10は、爪13のみでずれ止めを行え、ずれ防止の効果が高い。また、係止のみを目的とした爪13は、圧入を行う図6の円筒ボス部21よりも長さが短くて済むため、図5の構造でも取付孔5の有効ねじ長さを増加させ得る。

【0026】なお、この発明の適用対象には、取付足がトルクメンバに設けられ、そのトルクメンバにキャリパがディスク軸方向スライド自在に取付けられる浮動型ディスクブレーキも含まれる。

【0027】

【発明の効果】以上述べたように、この発明では、シム板を取付足に爪と弾性腕片により取付孔の孔径方向に抱きつかせて仮止めするようにしたので、取付孔の有効ねじ長さのロスが無くなり、取付足の厚みが制限される場合にも使用可能となる。

【0028】また、取付足の側面に設ける凹部又は凸部に特定方向に傾いた鉋肌面の斜面を含めてその斜面に弾性腕片に係合させるものは、鉋肌面を機械加工する必要がなく、生産面、コスト面で有利になる。加えて、シム板を引き寄せる力が発生し、基部の浮き上がりが防止されるため、仮止めの信頼性も向上する。

【0029】さらに、弾性腕片をシム板の片側半分の外周縁部に設け、爪を残し半分の外周縁部やボルト孔の孔縁部に設けたものは、シム板の装着を容易に行える。また、爪をボルト孔の孔縁部に複数設けたものは、シム板のずれ防止も確実になされ、支持部材に対するブレーキ装着を支障無く行える。

【図面の簡単な説明】

【図1】この発明のディスクブレーキの一例を示す要部破断側面図

【図2】図1のブレーキの取付足とシム板を分解して示す斜視図

【図3】図2のシム板を取付足に係止めた状態の断面図

【図4】弾性腕片を凸部に係合させた例を示す断面図

【図5】(a)シム板の変形例を示す斜視図

(b)同上のシム板を取付足に係止めた状態の断面図

(4)

特開2002-295539

6

5

【図6】(a) 従来のシム板を示す斜視図

(b) 同上のシム板の仮止め状態を示す断面図

【図7】(a) 従来のシム板の他の例を示す斜視図

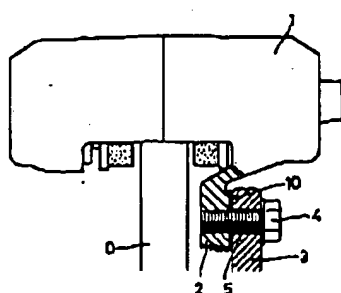
(b) 同上のシム板の仮止め状態を示す断面図

【符号の説明】

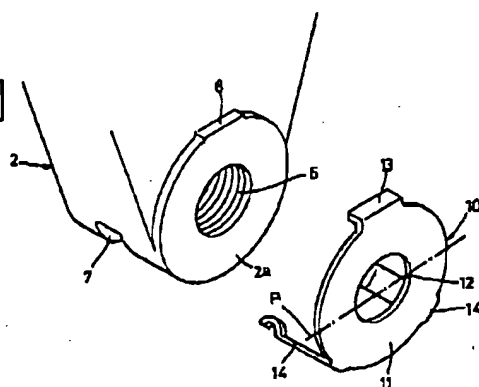
- 1 キャリパ  
2 取付足  
3 支持部材  
4 取付ボルト  
5 取付孔  
6 爪掛け用段部

- 7 凹部  
7a 斜面  
8 凸部  
8a 斜面  
9 爪掛け孔  
10 シム板  
11 基部  
12 ボルト孔  
13 爪  
10 14 弾性腕片

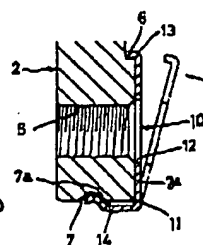
【図1】



【図2】



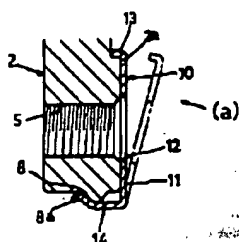
【図3】



【図6】

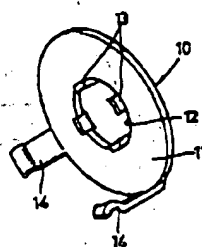
(a)

【図4】

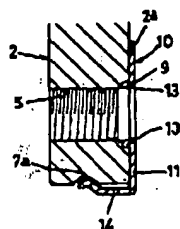


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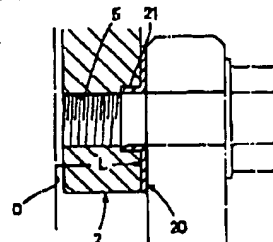
【図5】



(b)



(b)

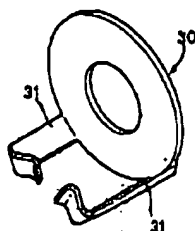


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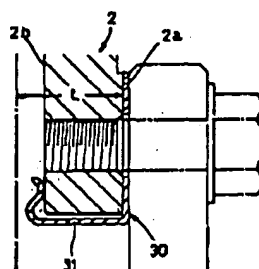
特開2002-295539

【図7】

(a)



(b)



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(71)Applicant : SUMITOMO DENKO BRAKE  
SYSTEMS KK

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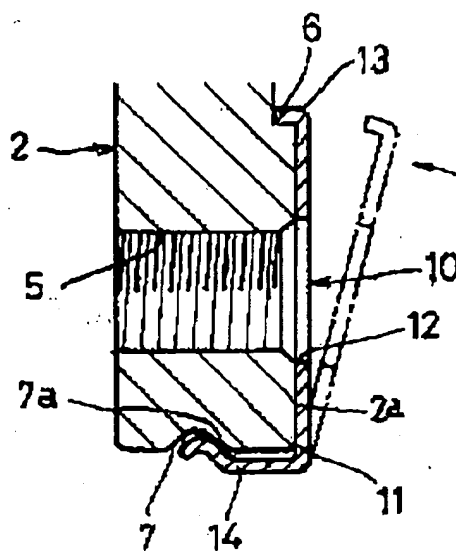
(72)Inventor : SUMIKAWA TAKASHI

## (54) DISK BRAKE

## (57)Abstract:

PROBLEM TO BE SOLVED: To provide a disk brake, capable of shipping by temporally fixing a shim plate which is intervened between a setting foot and a supporting member which fixes the setting foot with a bolt, even when the setting foot of the brake device is forced to thin in thickness.

SOLUTION: A claw 13 and an arm piece 14, which are bent in the same direction as an outer periphery of an base part 11 of the shim plate 10 having a bolt hole 12 are set, the elastic arm piece 14 is engaged with a recess part 7 set at a side of the setting foot 2, and the claw 13 is stopped in a step part 6 set at an end of the setting foot so as to temporally fix the shim plate 10 by pinching thereof in the pore diameter direction of a setting hole 5.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

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**CLAIMS**

**[Claim(s)]**

[Claim 1] In the disk brake which intervenes a SIMM plate with a bolthole between the supporter material which fixes the attachment guide peg and its attachment guide peg of a brake gear with a bolt The disk brake characterized by making it cling in the direction of an aperture of the mounting hole which said SIMM plate was made to engage with the crevice or heights which prepared the pawl and the piece of an elastic arm which were bent in the direction of board thickness, and prepared said piece of an elastic arm in the side face of an attachment guide peg, and formed the SIMM plate in the attachment guide peg by the pawl and the piece of an elastic arm.

[Claim 2] The disk brake according to claim 1 it was made to make the piece of an elastic arm engage with said crevice or heights on the slant face including the slant face of the casting surface side which inclined in the direction which separates from the core of a bolt mounting hole as the base of a SIMM plate is approached to the flat surface of the base of a SIMM plate.

[Claim 3] The disk brake according to claim 1 or 2 which prepared in the periphery edge of the single-sided one half of the SIMM plate which carried out the piece of an elastic arm the core [ a bolthole ] for 2 minutes, and formed said pawl in the periphery edge of the remaining one half.

[Claim 4] The disk brake according to claim 1 or 2 made it make \*\*\* of a pawl credit hole which prepared in the periphery edge of the single-sided one half of the SIMM plate which carried out the piece of an elastic arm the core [ a bolthole ] for 2 minutes, formed said pawl in the hole edge section of the bolthole of a SIMM plate, and formed the pawl in the inlet port of the bolt mounting hole of an attachment guide peg stop.

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[Translation done.]



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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the disk brake which intervenes a SIMM plate for the purpose of electric corrosion prevention etc. between the supporter material which fixes the attachment guide peg and its attachment guide peg of a brake gear with a bolt.

[0002]

[Description of the Prior Art] In the disk brake, intervening the SIMM plate which neither an electric corrosion nor an anchoring side functioned, and performed the quality of the material or processing according to each purpose for the purpose of prevention between the supporter material formed with the iron system ingredient which fixes with a bolt the attachment guide peg and its attachment guide peg of the brake gear formed in a caliper or a torque member is performed.

[0003] The conventional example of the SIMM plate is shown in drawing 6 and drawing 7. The SIMM plate 20 of drawing 6 is a press fit method, is pressed fit in the entrance-side major diameter of the mounting hole (\*\*\* hole) 5 which formed the cylindrical boss section 21 hammered out on one side in the attachment guide peg 2, and carries out [ tacking ] to an attachment guide peg.

[0004] Moreover, the SIMM plate 30 of drawing 7 is a pinching method, it makes field 2b of the opposite side carry out the pressure welding of the piece 31 of an elastic arm prepared in the periphery section to clamp-face 2a of the attachment guide peg 2, is made to cling to an attachment guide peg, and performs eye tacking by disk shaft-orientations pinching.

[0005] In addition, the boss section 21 of the SIMM plate of drawing 6 is placed and replaced with two or more pawls with which a hoop direction is made dotted. Insert the snap ring which formed the major diameter and the narrow diameter portion in the hoop direction by turns inside the pawl, and the pressure welding of the major diameter of the snap ring is carried out to the inside of the entrance-side major diameter of a mounting hole 5. What the narrow diameter portion of a snap ring is made to stop a sense flection among the tips of a pawl, and carries out [ tacking ] of the SIMM plate by the snap ring (refer to JP,9-53666,A) is considered.

[0006] In addition, eye tacking of a SIMM plate is made for the purpose of reduction of the time and effort of storage of a disk brake until it carries in a car etc., management, and conveyance, the workability improvement at the time of brake wearing, etc.

[0007]

[Problem(s) to be Solved by the Invention] The conventional SIMM plate mentioned above runs short of the effective length of the screw thread of a mounting hole 5, when the dimension L from the end face of Disk D to the clamp face of the attachment guide peg 2 cannot fully be taken, and it may receive use regulation from this field.

[0008] Moreover, what the SIMM plate of a press fit method is attached, sometimes needs a press fit machine, and uses a snap ring does not increase and have the desirable number of shipfitters.

[0009] This invention makes it the technical problem to cancel faults, such as this.

[0010]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, it is made to engage with the crevice or heights which prepared the pawl and the piece of an elastic arm which were bent in the direction of board thickness to the SIMM plate, and prepared said piece of an elastic arm in the side face of an attachment guide peg, and was made to make it cling in the direction of an aperture of the mounting hole which formed the SIMM plate in the attachment guide peg by the pawl and the piece of an elastic arm in this invention.

[0011] If this SIMM plate makes the piece of an elastic arm engage with the casting surface side which inclined in the direction which separates from the core of a bolt mounting hole to the flat surface of the base of a SIMM plate on that slant face at a crevice or heights including a slant face as it approaches the base of a SIMM plate, it will become more desirable.

[0012] In addition, the thing which formed the SIMM plate to be used in the periphery edge of the single-sided one half of the SIMM plate which carried out the piece of an elastic arm the core [ a bolthole ] for 2 minutes, and formed said pawl in the periphery edge of the remaining one half. It prepares in the periphery edge of the single-sided one half of the SIMM plate which carried out the piece of an elastic arm the core [ a bolthole ] for 2 minutes. Although it was made to stop \*\*\*\* of a pawl credit hole which formed said pawl in the hole edge section of the bolthole of a SIMM plate, and formed the pawl in the inlet port of the bolt mounting hole of an attachment guide peg, it thinks of two persons, and whichever of two persons may be chosen.

[0013]

[Function] Since a SIMM plate is made to cling to radial [ of a mounting hole ] by the pawl and the piece of an elastic arm and carries out [ tacking ] to an attachment guide peg in this invention. On structure, when tacking maintenance only by the piece of an elastic arm cannot be performed, a pawl is formed in the location in which the piece of an elastic arm cannot be prepared. It enables maintenance by elastic stability to perform tacking maintenance using the pawl which cannot be done independently. Therefore, the clearance for interference evasion between the disks which the press fit cost and the SIMM plate 30 of drawing 7 which the SIMM plate 20 of drawing 6 needed needed is unnecessary, and can lengthen the part and the effective \*\*\*\* die length of a mounting hole. Therefore, it can be used also for the brake which cannot but make thickness of an attachment guide peg thin, and the use range is expanded.

[0014] The thing which includes the slant face of a casting surface side in the crevice and heights which are prepared in the side face of an attachment guide peg, and makes the piece of an elastic arm engage with the slant face does not need to machine a casting surface side. Furthermore, by engaging with the central part of the slant face of the casting surface side which inclined in the direction which separates from the core of a bolt mounting hole as the flat surface of the base of a SIMM plate is approached, it is engaged certainly, without interfering in an engagement partner's slant face with any parts other than the slant face, even if a casting surface dimension varies, and the relief from the clamp face of a SIMM plate can be prevented.

[0015] Moreover, what prepared the piece of an elastic arm in the periphery edge of the single-sided one half of a SIMM plate, remained and formed the pawl in the half periphery edge makes the piece of an elastic arm engage with concave heights, makes that the supporting point, as it raises a SIMM plate, it can make an attachment guide peg stop a pawl, and wearing of a SIMM plate tends to carry out it.

[0016] The thing which makes the pawl credit hole of the inlet port of a mounting hole stop a pawl can also equip with a SIMM plate easily in the same procedure as the above. Moreover, this structure can also prevent more certainly a motion in the direction of the diameter of a mounting hole of a SIMM plate by the pawl.

[0017]

[Embodiment of the Invention] The operation gestalt of the disk brake of this invention is shown in drawing 1. This drawing is an example of application to a piston opposed type disk brake, and the attachment guide peg 2 is formed in the inner side of a caliper 1.

[0018] The brake supporter material by which 3 is installed in a car, the mounting bolt with which 4 fixes the attachment guide peg 2 to the supporter material 3, and 5 are the mounting holes for bolt bell and spigots established in the attachment guide peg 2. Since a bolt 4 attaches a bush nut (not shown) in the attachment guide peg 2 and is made to screw it in the nut, a mounting

hole 5 becomes the form indirectly prepared in the attachment guide peg in that case.

[0019] The step 6 (refer to drawing 2 and drawing 3) for pawl credit meeting the periphery of clamp-face 2a and the crevice 7 (refer to drawing 3) which falls in the direction of an aperture of a mounting hole 5 are established in the attachment guide peg 2. A crevice 7 may be placed and replaced with the heights 8 as shown in drawing 4. Anyway, the crevice 7 and heights 8 are prepared in the side face of the attachment guide peg 2.

[0020] The object for electric corrosion prevention which intervenes between the attachment guide peg 2 and the supporter material 3, or a clamp face does not function, and 10 is a SIMM plate for prevention. As shown in drawing 2, this SIMM plate 10 makes a base 11 the configuration which covers clamp-face 2a of an attachment guide peg, forms a bolthole 12 in that base 11, further, prepares the pawl 13 and the piece 14 of an elastic arm which were bent in the same direction in the periphery edge of a base, and grows into it.

[0021] The SIMM plate 10 of instantiation makes the piece 14 of an elastic arm engage with a crevice 7 or heights 8, it can make that the supporting point, can start a base 11 from the chain-line location of drawing 3 and drawing 4, can make a step 6 stop a pawl 13, and is easy to attach. Moreover, two pieces 14 of an elastic arm are formed in the periphery edge in the lower half of the base bordering on the line P passing through the core of a bolthole 12 (drawing 2) at bilateral symmetry, and it is made to perform three-point support by the pawl 13 and the piece 14 of an elastic arm, and is hard to carry out a location gap after anchoring.

[0022] The crevice 7 of drawing 3 and the heights 8 of drawing 4 include the slant faces 7a and 8a of the casting surface side which inclines towards illustration, and the piece 14 of an elastic arm engages with the slant face. The elastic stability of the piece 14 of an elastic arm acts on an engaged point in this condition, the base 11 of a SIMM plate can draw near to the left of drawing 3 and drawing 4 by that force, and float going up from clamp-face 2a is prevented.

[0023] When it is made to incline towards illustration of slant faces 7a and 8a, even if the dimension of the concave heights 7 and 8 varies somewhat, eye tacking and the above-mentioned come floating, and the purpose of prevention is attained, therefore it is not necessary to machine a casting surface side, and it becomes advantageous in respect of production and cost.

[0024] Drawing 5 is other operation gestalten. The SIMM plate 10 used here is made into the structure which the inside of the pawl credit hole 9 which formed two or more (three or more pieces are desirable) pawls 13 in the hole edge section of a bolthole 12 in the constant pitch, and formed this pawl 13 in the inlet-port section of a mounting hole 5 is made to stop. Since other configurations are the same as the SIMM plate of drawing 1 - drawing 4, explanation is omitted.

[0025] The SIMM plate 10 of this drawing 5 shifts only by the pawl 13, and can perform a stop, and its effectiveness of gap prevention is high. Moreover, since die length is short and ends rather than the cylinder boss section 21 of drawing 6 which presses fit, the pawl 13 aiming only at a stop may make the effective \*\*\*\* die length of a mounting hole 5 increase also with the structure of drawing 5.

[0026] In addition, an attachment guide peg is prepared in a torque member, and the float-type disk brake attached in that torque member free [ a disk shaft-orientations slide of a caliper ] is also contained in the candidate for application of this invention.

[0027]

[Effect of the Invention] By this invention, the loss of the effective \*\*\*\* die length of a mounting hole is lost, and as stated above, since a SIMM plate is made to cling in the direction of an aperture of a mounting hole by the pawl and the piece of an elastic arm and was [ tacking ] made to carry out to an attachment guide peg, also when the thickness of an attachment guide peg is restricted, it becomes usable.

[0028] Moreover, the thing which makes the piece of an elastic arm engage with the crevice or heights prepared in the side face of an attachment guide peg on the slant face including the slant face of the casting surface side which inclined in the specific direction does not need to machine a casting surface side, and becomes advantageous in respect of production and cost. In addition, since the force which draws a SIMM plate near occurs and float going up of a base is

prevented, the dependability of eye tacking also improves.

[0029] Furthermore, what prepared the piece of an elastic arm in the periphery edge of the single-sided one half of a SIMM plate, remained and formed the pawl in a half periphery edge or the hole edge section of a bolthole can equip with a SIMM plate easily. Moreover, gap prevention of a SIMM plate is also made certainly and what formed two or more pawls in the hole edge section of a bolthole can perform brake wearing to supporter material without trouble.

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[Translation done.]

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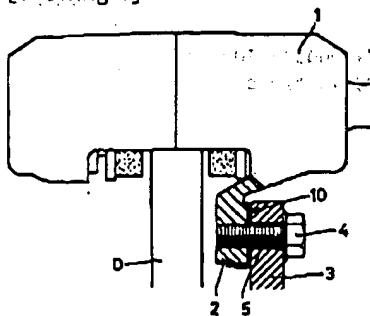
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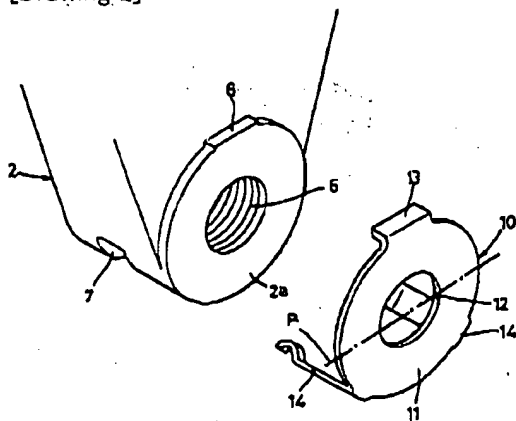
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**DRAWINGS**

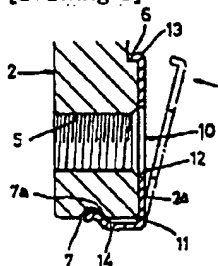
[Drawing 1]



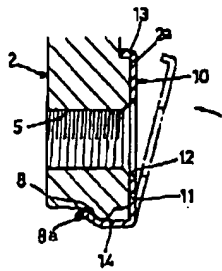
[Drawing 2]



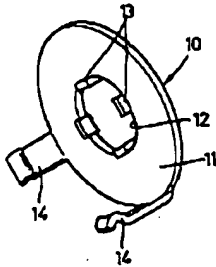
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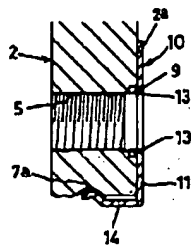
[Drawing 4]



[Drawing 5]  
(a)

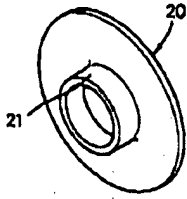


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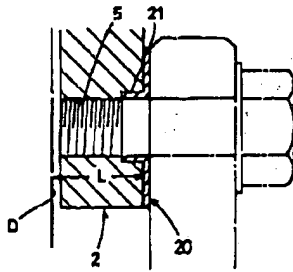


[Drawing 6]

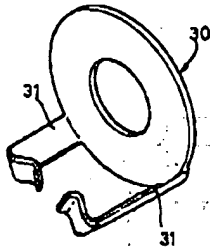
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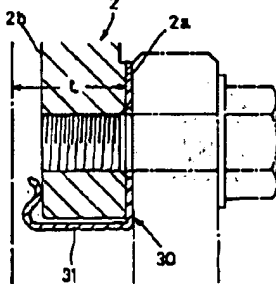
(b)



[Drawing 7]  
(a)



(b)



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